National Hydropower Association

Marine Energy:

Value to Alaska's Energy Mix

Briefing to Alaska House Energy Committee

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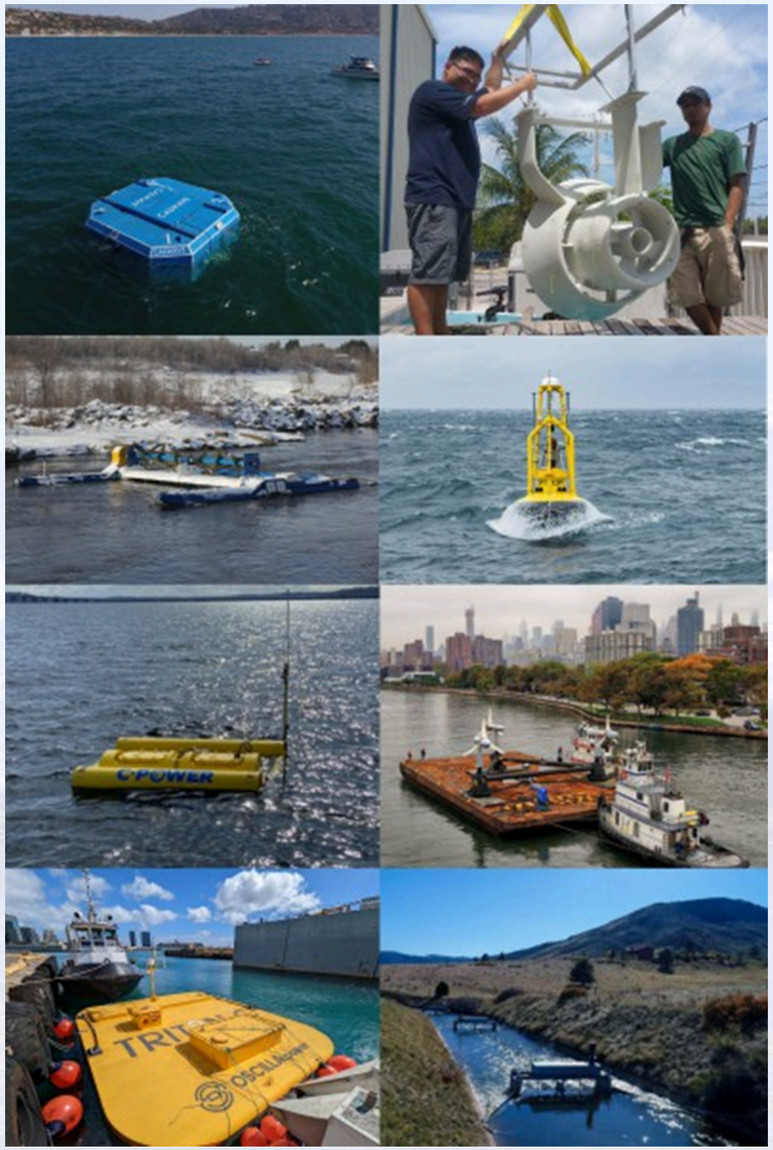
Background: National Hydropower Association

- Representing water power in all its forms
  - Hydropower
  - Pumped storage hydropower
  - Marine energy

- NHA Marine Energy Council's role in advocating for marine energy resources

- Providing a national lens to support Alaska's unique marine energy opportunity



Background: Marine Energy

- Energy generated from:
  - Waves, tides, and currents in oceans, estuaries, and tidal areas
  - Free flowing water in rivers, lakes, streams, and man-made channels

- Significant untapped resource

- Offers reliability, resiliency, predictability, and proximity to demand and population centers

- *Shown to right*: utility- scale potential, but marine energy has many off- grid applications

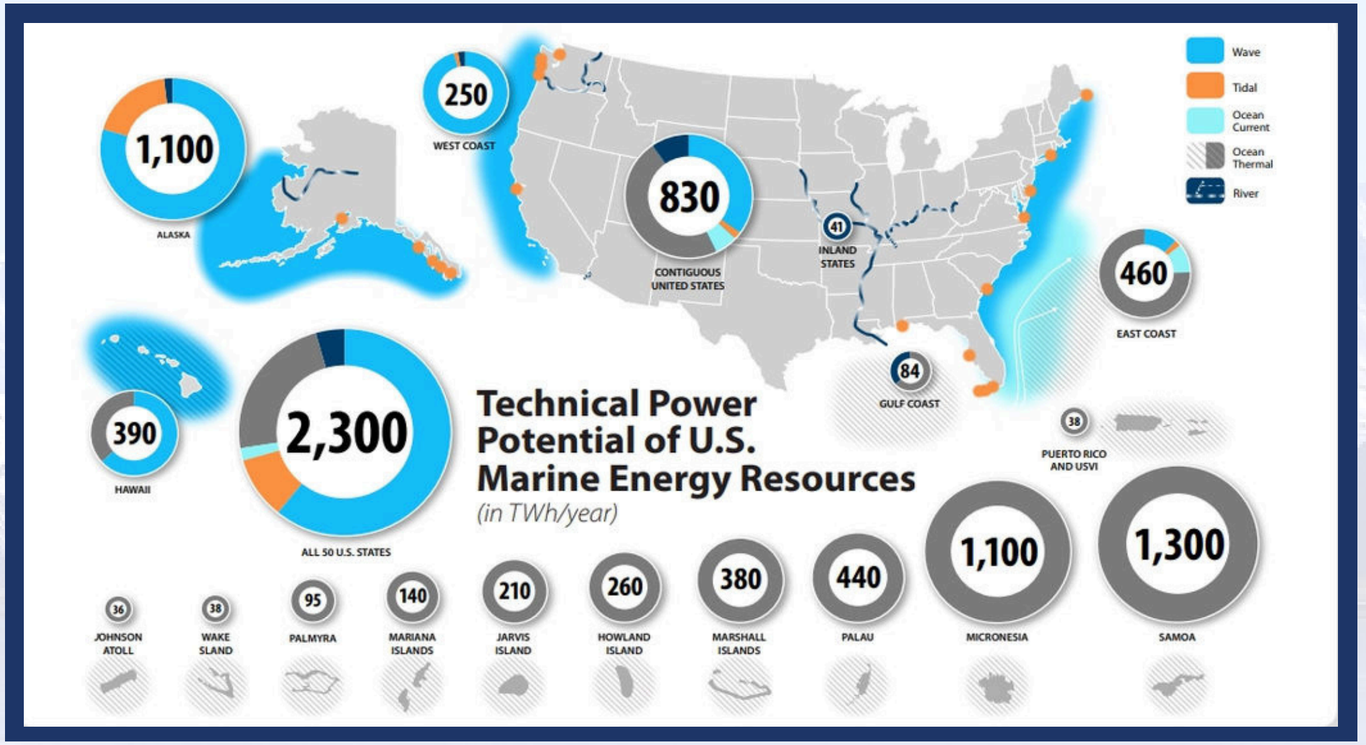


Image: National Renewable Energy Laboratory, 2021

Alaska has some of the best marine energy potential in the country — and is on the verge to lead in U.S. project deployments.

Developments in Marine Energy

- Alaska
  - Analyses done by U.S. National Laboratories
  - Companies pursuing projects
  - University of Alaska-Fairbanks and Pacific Marine Energy Center
- Lower 48 & Hawaii
  - Test sites - PacWave, Wave Energy Test Site (WETS), Bourne Tidal Test Site, Cal Poly Pier
  - Demonstration projects completed and others planned
- International
  - Canada: Grid connected tidal deployment in Bay of Fundy
  - United Kingdom: European Marine Energy Centre (EMEC) & Grid connected tidal project selling power to market
  - Europe: Technologies advancing from commercialization to industrialization

Alaska's Unique Resource Advantage

- Diesel-dependent communities
  - Over 100 remote Alaskan communities rely on imported diesel
  - These communities are ideal candidates for smaller-scale, site-specific marine energy to increase predictability

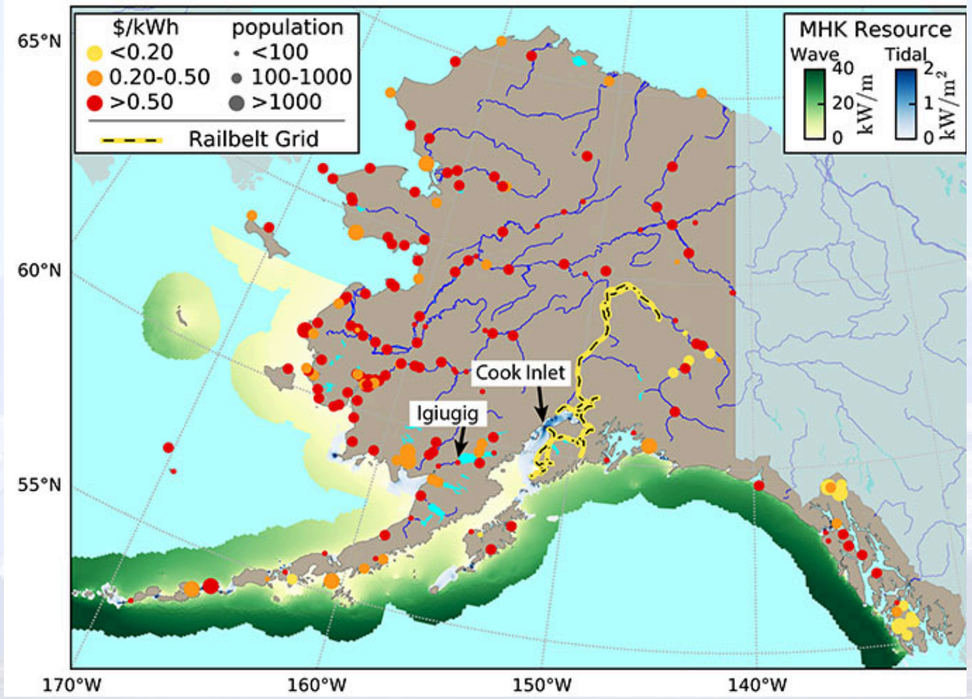


Image: National Renewable Energy Laboratory, 2020

- Significant marine energy resources
  - Cook Inlet's tidal resource is one of the most energetic in North America
  - Coastal Alaska sees significant wave energy potential, especially in the Gulf of Alaska
  - Riverine hydrokinetic energy offers additional community-based energy potential

Benefits of Marine Energy for Alaska

- Year-round energy availability
  - Marine energy is highly predictable and complementary to renewable energy technologies like wind and solar
  - Valuable firming resource that is regular and dependable – a vital piece to a baseload, always on grid

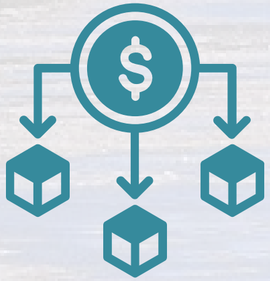
- Meeting rising power demands
  - Remote community electrification
  - Data center development
  - Offshore energy production (remote drill centers, critical mineral processing, hydrogen)

- Long-term economic development
  - Spurring a new marine energy supply chain can support jobs in engineering, construction, vessel services, and long-term operations in-state

Alignment with Alaska's Energy Goals

- Energy security and independence
  - Supports the goal of reducing reliance on imported diesel and diversifying local generation capacity, especially in rural and islanded communities

- Economic Development and Local Workforce
  - Promotes in-state innovation, skilled jobs, and maritime economy development - strengthening the state's position as a leader in renewable technology R&D



- Long-Term Energy Diversification
  - Diversifies the state's energy mix, helping to stabilize energy prices and reduce long-term exposure to imported fossil fuel market volatility

Examples of Support from Other Regions

- Other regions are taking targeted steps to explore how marine energy can contribute to their energy goals:

  - United Kingdom: Implementation of Contracts for Difference (CfD) to support tidal stream energy

  - Nova Scotia, Canada: Adoption of feed-in tariffs for tidal energy projects

  - California and Oregon: Integration of marine energy into offshore planning and infrastructure development

- These examples provide policy approaches that Alaska could adopt and customize to align with its energy objectives and regional context

Path Forward for Alaska and Marine Energy

- Exploring state policy mechanisms (e.g. market pull tools) to signal Alaska's commitment to marine energy and attract investment
- Aligning infrastructure and investment planning (ports, coastal microgrids, transmission) to include marine energy
- Engaging a Working Group to evaluate marine energy's role in meeting energy targets
- Supporting strategic demonstration projects in partnership with communities and developers
- Positioning Alaska as a leader in marine energy innovation and development

Thank You

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